MAY-JUNE 1961

# In-Plant

## OFFSET PRINTER

TECHNIQUES FOR COMPANY, INSTITUTIONAL AND GOVERNMENT PRINTING DEPARTMENTS

- **Offset Press Basics**
- **Three-Color Printing**
- **Laying Out a Darkroom**

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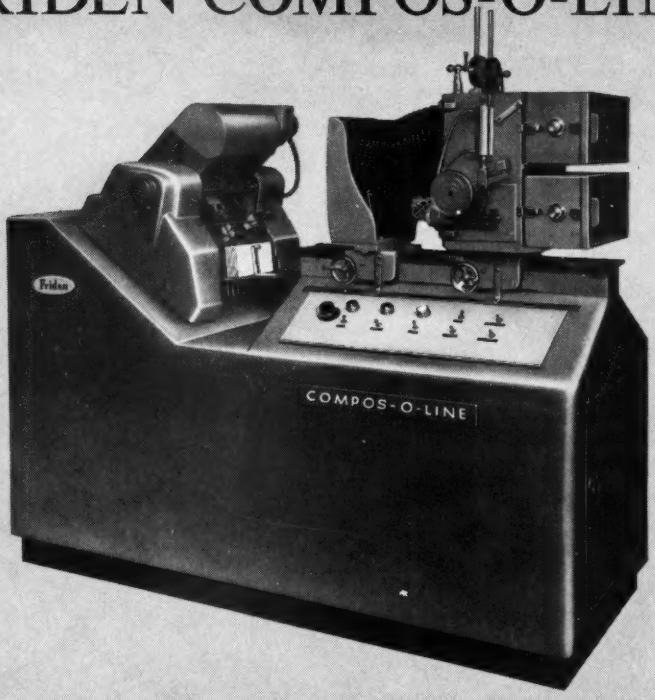


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**That's the editorial approach of IN-PLANT OFFSET PRINTER—the only publication edited exclusively for the fastest growing segment of the graphic arts industry in America. Ideas for users, news and information for printing decision-makers, techniques for shirt-sleeve executives are our business.**

## TO HELP US HELP YOU!

**The editors of IN-PLANT OFFSET PRINTER welcome your ideas, opinions and suggestions . . . to help us do the best possible job for you. Forthcoming issues will feature helpful articles on all aspects of in-plant printing . . . from the darkroom through the pressroom, from ordering procedures to collating systems. If you would like a particular area stressed, drop us a note and let us know what you are looking for. We will try to oblige.**

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MAY-JUNE 1961

# In-Plant
## OFFSET PRINTER

**Techniques for Company, Institutional and Government Printing Departments**

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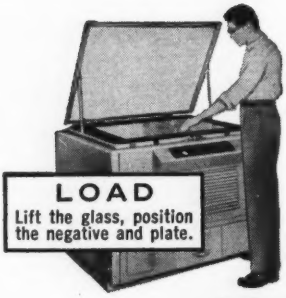

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OFFSET PRINTER

## FACTS AND FIGURES

We were privileged recently to visit several in-plant printing installations at government agencies. Of necessity, these are among the country's best organized and successful shops. Some of the factors responsible are peculiar to government but others are applicable to operations of any size. Their successful application by government printing sections point up lessons that even the smallest department can profit from.

One of the most elementary is to make regular "facts and figures" reports of your department's efficiency and its cost-savings contribution to overall company operations. This is especially pertinent during those periods when costs and budgets are being closely scrutinized.

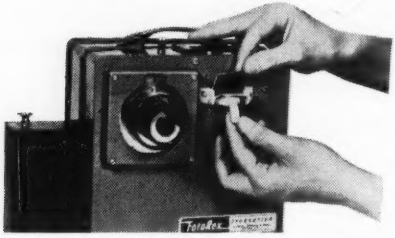
Government printing departments have to prepare such reports by regulation. Private companies can use the same technique to gain added respect from management for a business-like operation. Arming yourself with solid facts and figures in an attractive, illustrated presentation is not "apple-polishing." It's smart operating procedure and means you will be in better shape to argue for and get added equipment, responsibility and recognition.

THE EDITORS

# NEW PRODUCTS

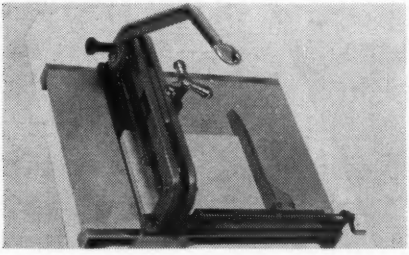
*For more information on any item, circle the same number on the Reader Inquiry Card (p. 32).*

### Photo Composer 601



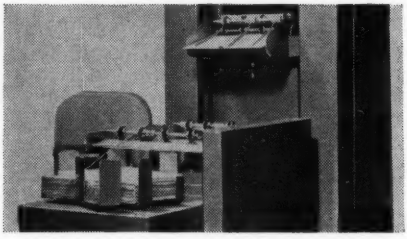
A photo composer made to prepare copy for headlines, paste-ups and layouts has been announced by *Electro-Rex Corp. of America.* Letters are inserted in the Foto Rex, exposed on the film and spaced by dialing. The line is cut off, developed and ready for mounting. Price: $139.50.

### Paper Cutter 602



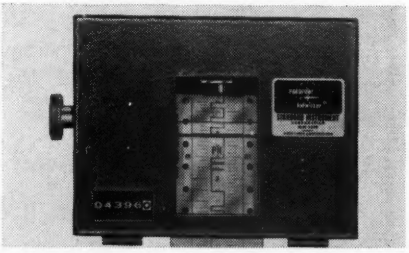
Two Table-Top paper cutters have been introduced by the *Douglas Homs Company.* Features include a Microwave back guide adjustment coupled with a ¼" graduated slide for quick cutting length selection. Both models have 300 sheet cutting capacity. Price: Model 11 (11½" cutting width), $119.50.

### Automatic Collator 603



*General Binding Corp.* announces its new GBC '150' Electric Collator which collates, staples, and stacks automatically. The exclusive Micro-Detector provides accurate sheet count for every cycle for any paper stock thickness used, stopping the machine if a collated set has either an extra or missing sheet.

### Machine Timer 604



Available from *Standard Instrument Corporation* is the Time Recorder-Totalizer, which measures and graphs the functional time of offset presses. When wired into a press, it draws a line on a time-printed chart roll showing the length of time and when in use. Seven

*continued on next page*

### Cutter Kit 623

*Griffin Mfg. Co.* has introduced a needle cutter kit packaged in a styrene plastic case. The kit contains a double end holder, five round and one pointed needle and two gouges. The round needles are ground on one side. Lithographers and plate makers will find the needles useful when ruling on negatives and for layouts on scratch board. Price: Kit, $2.50; eight needles only, $1.25.

### Special-formula Ink 624

A new line of special-formula duplicating inks has been announced by *Sadolins Inks of Denmark, Ltd.* The formula is aimed at keeping a better balance between ink and water. Inks are available in cartridges or pressman's cans and come in 30 colors.

### Letter Embosser 627

The Dymo Mite Tapewriter M-2 hand embossing tool has been announced by *Dymo Industries, Inc.* By dialing to the letter desired and pressing a handle, this tool will emboss on either vinyl or metal tapes. Five models are available including the M-2. Price: $34.95 and up.

### Carbon Film Ribbon 628

A line of carbon film typewriter ribbons has been introduced by the *Carter's Ink Company.* Called the Stylewriter, this line is made with Mylar polyester film, available in four colors and black on a Universal spool that fits on any machine.

### Phototypesetting 630

Three graphic arts products specifically designed for phototypesetting have been announced by *Eastman Kodak Co.* They are Kodak Phototypesetting Film, a high-contrast ortho-sensitive film for use in Photon machines; Kodak Phototypesetting Paper, which has a high-contrast emulsion comparable to that of the film; and Kodak Phototypesetting Developer, formulated for the new products.

*continued on page 28*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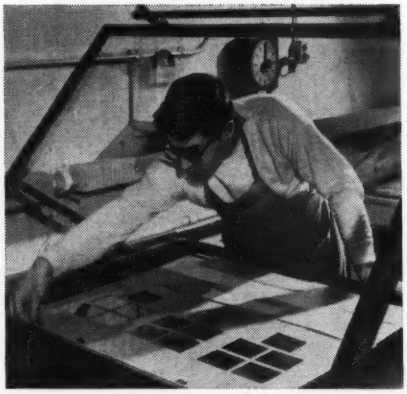
# 3 color

by BOB TUCKER
*Rochester Polychrome*



PLATING ROOM TECHNICIAN pin-registers negatives in vacuum frame in contact with pre-sensitized plates.

Until the introduction of the 3-color process, color printing was practical only in long runs, where the cost of camera work, platemaking, color correction and press time could be distributed over a large number of reproductions. The economies of 3-color, however, have brought full-color printing within the reach of many who heretofore had been confined to black-and-white by their budgets. You would be wise to consider it if you haven't already done so. You probably already have most of the equipment needed for the process. As to know-how, we'll try to fill you in on that.

## How We Do It

At Rochester Polychrome, our procedure for "pleasing color" reproduction is similar to the steps recommended in literature on the subject distributed by the Eastman Kodak Company. This color system involves the use of Kodak materials but is in no way licensed or controlled by Kodak.

1. A process densitometer is used to examine the transparency and to determine the density ratio between the highlight and shadow areas. This ratio gives us the density value for our principal mask.

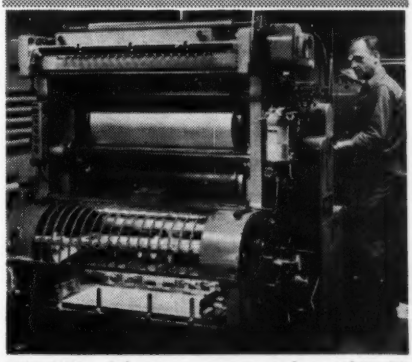
2. The transparency is placed on Kodak Pan Masking Film and correctly positioned using a Kodak Matrix Film Punch. The film is then exposed, developed and dried, producing the mask, which is then registered with the original transparency. We

# work

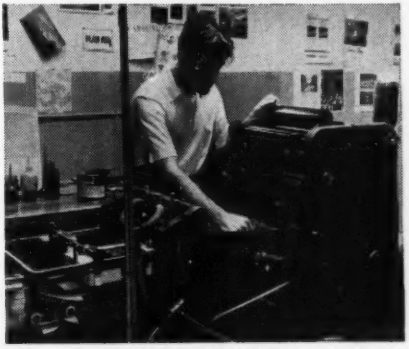
found that by making an unsharp mask, we get the best results.

3. Then we are ready to make the cyan, magenta and yellow exposures on Kodalith Pan Film. We get screened negatives to size using a Kodak Gray Contact Screen.

4. These screened negatives are then placed, emulsion down, on a presensitized aluminum plate. The correct plate exposure is obtained by using a gray scale as a sensitivity guide.



THE USE of larger presses, such as this 29-inch Miehle, has broadened the applications for "pleasing color."



THIS OFFICE-TYPE DUPLICATOR is still the standby for a large portion of the 3-color work at Rochester Polychrome.

5. Then we are ready to go to press. Ink coverage and density on press proofs are measured using the reflection head of the densitometer. The best idea is to use the densitometer when there is any question of color.

To get the most for the least, we set standards, maintain them and keep checking back all the way along the line. This eliminates guesswork

*continued on page 30*

# DAIRYLAND AND ITS "DO-ALL" CAMERA

## Storage and other problems eliminated by vertical unit.

In Dairyland Press' offset shop type is blown up—by a camera. A processor of both low-grade wholesaler price lists and fine four-color process work, Dairyland uses a process camera for nearly all its negative production requirements.

The operators of the camera, a Kenro "Vertical 18", developed a way to satisfy a customer's requirements for large-size type not stocked by the company. Say a customer wants a 17″x22″ poster requiring large size type. Such a poster takes a make-up man five hours to set. With the Kenro, however, the operator sets it to 8½″ x 11″ in an hour. Then he blows it up to 2X enlargement on the camera and has a plate, at required size, within one hour.

J. R. Kirley, general manager, remarks that every firm, no matter what size, has a storage problem for standard letterpress forms and Dairyland's is acute.

"Our use of the vertical camera," he said, "makes this storage problem immeasurably simpler. After press work is completed, a good repro quality proof is pulled and is either filed or put on the camera to produce an immediate negative, which is then filed. The proof can be shot, of course, at any time. This means that if the customer requires a re-run, it can be done offset with minimum delay and expense. In addition, this method releases expensive type-metal for new uses."

Initially, the Kodak Autoscreen Process was used for producing halftones, but the contact screen method is now used exclusively. The cameraman makes from 12 to 15 shots per hour. This does not include developing time, since the operator develops all negatives at once. If the operator has many changes in proportion between original copy and negative size, this production rate may be lessened, unless he doubles up his copy, as is often the case. □

# TYPEWRITER TIPS

## The best machine, paper and ribbon for offset.

The chances are that as an in-plant offset printer, it is routine for you to be called upon to reproduce typewritten material. When you are you must ask yourself the following questions:

1. Will the text reproduce with desirable clarity?
2. Will much time have to be spent spotting the negatives?
3. Will the reader have an easy time reading the reproduction?

The answer to these questions could be "maybe yes" or "maybe no," depending on how lucky you are. Ironically, the answer could always be "yes" if you supply the typist with some information before she begins typing the copy.

If the report or document is being typed with the intention of either stripping in a halftone to the master negative or for a direct run with no strip-in, the reproduction manager should let the typist know three things:

1. The best typewriter to use.
2. The best ribbon to use.
3. The most suitable paper to use.

*Typewriters.* The best typewriter to use for reports or any other copy for reproduction is any of the new electric machines. Combined with the correct ribbon, these produce the best product possible short of typeset. Most companies today have electric typewriters.

*The Ribbon.* We said in the last paragraph that the typewriter must be mated with the correct ribbon. Ordinary ribbons are good enough for reflection viewing, but they leave much to be desired when the impressions must be copied in the camera.

Use a total transfer ribbon such as the one supplied with the IBM Executive typewriter. *This ribbon can be used one time only.* The Executive machine is equipped with a ⅜-inch ribbon carrier, which is the only size that accepts a transfer ribbon. It costs about $50 to convert a standard electric IBM model, which has a half-inch ribbon carrier, to the ⅜-inch size, but it is worth every penny in the final reproduction of copy.

Transfer ribbons are available in three basic grades:

Paper ribbon — Order No. 520.
Acetate ribbon — Order No. 5550-2.
Mylar ribbon — Order No. 555.

The Mylar ribbon is the best you can use. It is supplied in longer lengths for extended typing time. Both the acetate and Mylar ribbons produce sharply defined characters.

If your secretaries employ Royal electric typewriters have them use a Royal M1200 Mylar ribbon, which is a transfer ribbon similar to the IBM Mylar.

When typing for reproduction, a good grade of coated stock paper should be used rather than a conventional office bond, which never produces the best results. □

# LAYING OUT

by HAL DENSTMAN and
MORT SCHULTZ
*Stavid Engineering Co., Div.*
*Lockheed Electronics*

Is your problem squeezing a small darkroom staff into an even smaller work area loaded with equipment? Do you wonder how you can stay within your budget and still turn out special jobs that seem to demand extra equipment?

The answer is a little logic and a lot of inventiveness in laying out your darkroom either in the planning or replanning stage. Here are some key points to keep in mind.

First, the entire area should be well-illuminated. Too often inefficiency stems from inadequate lighting conditions or from lighting conditions that differ from area to area.

Inspection of negatives and prints, for example, should be done in a darkroom having the same lighting conditions as the finishing room where the negatives and prints are handled in their final stages. What may seem acceptable in the darkroom under one lighting level may be rejected in the finishing room under another lighting level.

Machinery and working equipment should be located as close as possible to the next operation. For example, photographic printing apparatus should be within close range of developing sinks, and sinks should be close to wash tanks. There should be sufficient room between pieces of equipment for personnel to work without bumping into one another.

### Should Flow Logically

The area should be planned so that there is a logical flow in sequence operations. For example, the lab could be designed in a horseshoe shape, with work entering at one end and coming out as a finished product at the other, without having to double back, thereby losing time and raising the cost of a job.

The area should be laid out for future expansion. Keep in mind that an increase in personnel and the addition of new equipment will result in the need for a larger area or more efficient utilization of the present area.

Equipment should be utilized to the maximum. There are many cases where one piece of equipment will do many jobs. This equipment should be located near auxiliary apparatus that could be used in conjunction with it, increasing the potential of the equipment.

For example, the accompanying

# A DARKROOM

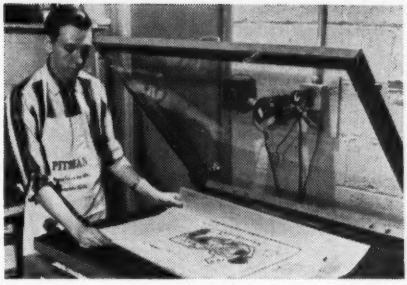


FIGURE 1

photographs show how a typical piece of equipment — a vacuum frame — is located so it can be used with other nearby units. *Figure 1* shows the frame being used in a horizontal position for negative-to-positive transfers of a printed circuit original.

*Figure 2* illustrates the same piece of equipment in a vertical position being used for autopositive printing in conjunction with a nearby arc lamp.

*Figure 3* is a diagram of the unit with auxiliary equipment. The arrow marked "1" is a recessed lighting fixture, which produces high intensity wide-beam illumination for reflex printing or conventional contact printing. The arrow marked "2" shows another fixture recessed in the ceiling. This one is a pinpoint light source

*continued on page 14*

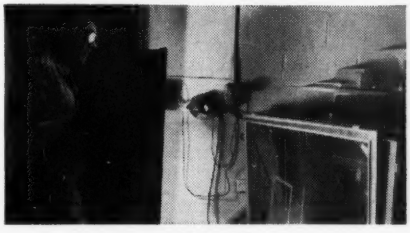


FIGURE 2

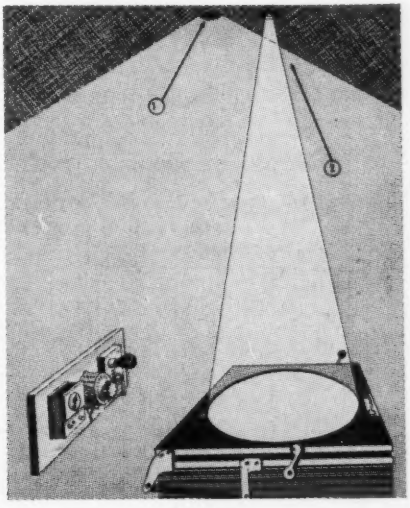


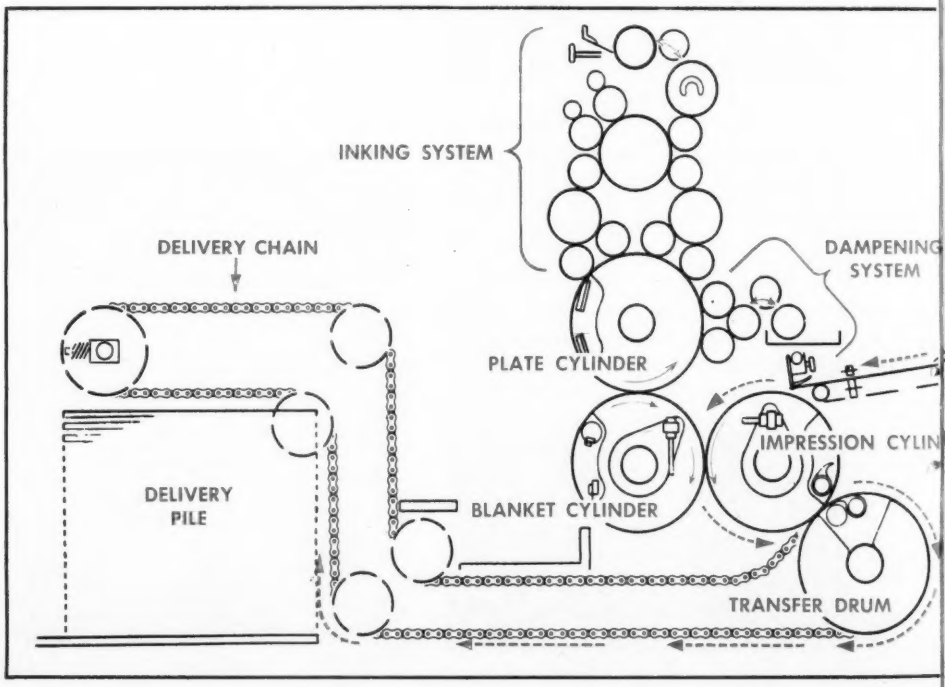
FIGURE 3

# PRESSES: BASICS AND

The basic design of all offset presses is quite similar. Most have three main cylinders — the *plate cylinder,* the *blanket cylinder* and the *impression cylinder.* These are part of the printing unit of the press, which also contains the *inking* and *dampening* systems. The other major units of an offset press are the *feeder* and *delivery* units. The diagrammatic sketch of an offset press that accompanies this article shows the relationships of its various components.

**PLATE CYLINDER.** The plate cylinder bears the actual printing plate. It deposits the ink image of the copy onto the rubber blanket around the blanket cylinder, which in turn transfers it to the paper.

The plate cylinder has bearers, undercut, gear drives and clamping devices. The bearers are steel cylindrical rails on which the cylinder rides while the impression cycle is on. They provide a uniform printing impression and minimize gear wear. Undercut



# COMPONENTS

allows for the thickness of the plate. The mechanical gears drive the cylinder and help maintain the uniformity of the cycle. The clamping devices hold the plate securely in place.

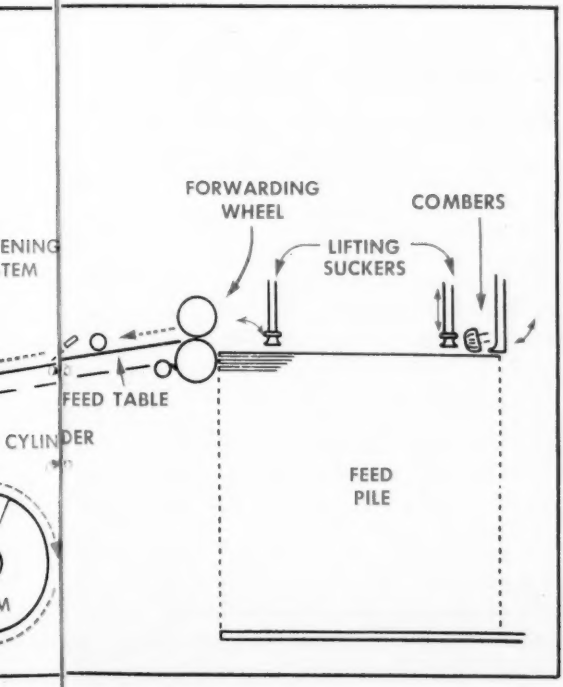
**BLANKET CYLINDER.** Like the plate cylinder, the blanket cylinder has bearers, undercut, gear drives and clamping devices. The blanket cylinder is undercut more than the plate cylinder because of the greater thickness of the blanket.

**IMPRESSION CYLINDER.** The impression cylinder brings the paper in contact with the blanket. It differs from the other two major cylinders in that it has no bearers and it is not undercut.

**INKING.** The main requirement of a good ink distribution system is that it breaks down the ink structure coming from the ink fountain to allow thin ink-films that are smooth and uniform to be deposited onto the printing plate. This is accomplished through a complex system of rollers. (*See diagram.*)

An offset press has about twice as many rollers in its inking system as its letterpress counterpart. One reason is that offset inks have a greater pigment to vehicle ratio. Primarily this high ratio of color to vehicle in offset inks is because in the offset method the ink film is split twice before it reaches the paper. Thinner ink films reach the paper; therefore, the color strength must be high enough to compensate for this splitting action. The ink distribution system must be large enough to disperse this color to render it smooth and uniform.

**DAMPENING.** The dampening mechanism provides moisture for the plate. Usually it consists of five rollers. (*See diagram.*) The largest revolves in a fountain, picking up a thin film of fountain solution. The ductor




DIAGRAMMATIC sketch of an offset press.

roller transfers the solution to the vibrator roller which, moving from side to side, spreads an even film of fountain solution to the form rollers. When printing, the form rollers contact the plate and deposit a thin film of fountain solution on the plate. The liquid adheres to the non-image areas and is repelled in the image areas. This, of course, invokes the basic lithographic principle that grease and water do not mix.

**FEEDER UNITS.** Two types of paper feeding mechanisms are popular. The single sheet-fed type feeds one sheet at a time to the conveying table at a speed approaching that of the printing unit surface speed. Devices for slowing down the sheet prior to entering the impressing cylinder grippers are necessary on presses using this type of feeder.

The stream-fed feeder is similar to the sheet-fed type, but the suckers are usually at the rear edge of the sheet. These suckers lift the tail edge of the sheet, and air floats the entire sheet, while the suckers move the sheet forward. Stream feeders start a sheet before the previous sheet leaves the pile, so that the sheets going down the table overlap. The advantage in this is that while the feeder is operating at full speed, five sheets going down the conveyor table to the grippers need only move at a fifth the press speed. No slow down devices are necessary because the sheets overlap and they hold each other flat. Most presses from 22 to 76 inches come stream-feeder equipped. Most offset duplicators are equipped with the single sheet feeder.

**DELIVERY UNITS.** The delivery unit carries the printed sheet from the impression cylinder grippers and delivers it properly jogged and face up onto a pile.

### Delivery Process

The delivery process begins with the paper being transferred from the impression cylinder grippers to the delivery grippers. As the delivery grippers pull the sheet forward, the skeleton cylinder guides the sheet from the printing unit. The sheet is then pulled forward and released onto a pile where slow down and jogging devices act upon the sheet to allow the delivered sheets to be piled evenly and prevents setoffs.

These are the essential elements of an offset press. The main differences in the various models on the market lie in refinements of these elements which allow the pressman to work easier and faster and allow him greater control over the quality of his product. □

## Darkroom Layout

*continued from page 11*

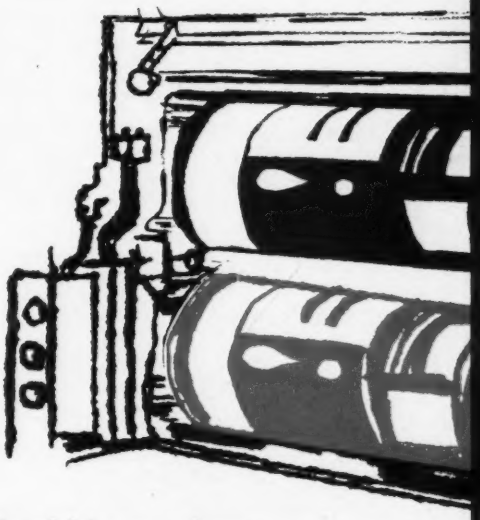
for making ultra fineline reproductions.

### Control Panel

To the left of the frame is a control panel mounted on the wall that holds a second timer, a voltage regulator, a safelight and an electrical outlet. Either of the two light sources in the ceiling can be used in conjunction with the timer or voltage regulator for making exposures (the voltage regulator is also used for controlling light intensity).

All this equipment is located within a five foot square area. It takes up little room but yet is so versatile that it can be used for numerous types of reproduction operations. □

# ALL ABOUT BLANKETS



## What every pressman should know about one of the key pieces of lithographic gear.

Blankets are a very important part of offset lithography, so it behooves printers to know more about them than the simple fact that they transfer the image to the paper.

An offset blanket must have the following qualifications: (1) a smooth synthetic rubber surface over a carcass of high-grade cotton, (2) resiliency so as to require only minimum pressure, (3) resistance to swelling when cleaned, (4) resistance to the actions of inks and driers and (5) resistance to excessive stretching.

Having secured a blanket with these qualifications, it must be properly mounted on the blanket cylinder. This presents no problem in the case of duplicators. The mounting bars are loosened, and the blanket is slipped on and locked into place. For larger presses, the blanket is first mounted on blanket bars, and these bars are then bolted onto the press.

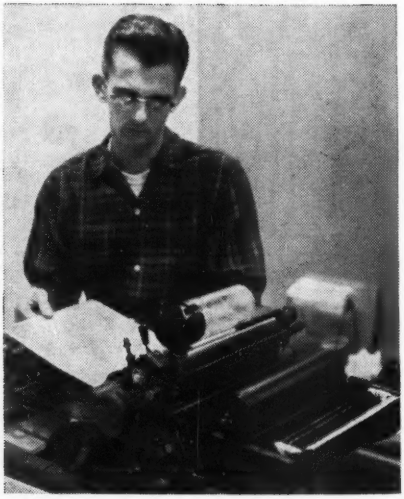
The blanket must be properly aligned and tightened. All four corners must be square, and the pressure exerted over the entire surface should be even. If the blanket bar screws aren't thoroughly tightened, slippage or pulling out of the blanket will occur.

The face of the blanket has to be packed up to "kiss impression" height or pressure. Paper manufacturers supply non-swelling waterproof paper in uniform thicknesses ranging from one to 10 points. By a combination of these sheets, any degree of thickness can be achieved.

Printing quality as well as blanket life are highly dependent upon proper blanket tension. Blanket wrenches are supplied by the press manufacturer. The normal pressure that can be exerted with these wrenches is usually sufficient to properly tighten a blanket.

*continued on page 17*

# DIVIDE AND CONQUER



TWO TYPICAL ACTIVITIES at Corning Glass Works in-plant printing department. Top, Durwood Cook attaches a metal plate to press. Below, Robert Bevins (R), department supervisor, checks over material that requires special type and layouts with Tillie Moulthrop.

**Through efficient scheduling a 5-man department prints 10 million pieces a year.**

A division of work by geographic location within the company and an efficient scheduling system enables Corning Glass Work's five-man offset department to turn out ten million pieces of printed matter a year as a matter of course.

The department is set up in two areas with four duplicating machines, a 1250 Multilith and three 350 A.B. Dicks. One machine services the northside areas and three machines serve the southside offices.

Printing orders for a variety of jobs are accepted and scheduled by a clerk on the southside and by the operator on the northside. The clerk who is designated as a scheduler and composer is an active member of the department, doing layouts and composition where required. The other four department members are classified as printers.

### Paper Masters Encouraged

The various departments at Corning are encouraged to use paper masters and submit them ready to run. These

# AMAZING!

## PROFESSIONAL QUALITY FOR OFFICES!

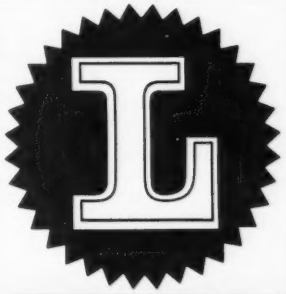
ELECTRIFYING!
SPEED DESENSITIZER
**FOR**
REPRODUCTION DEPARTMENTS!

FITS THE NEEDS OF
**LETTER SHOPS**
FOR ALL KINDS OF
SHORT RUNS

**PRINTS LINE, HALFTONE, & COLOR JOBS WITH FIDELITY!**

# FANTASTIC!

**NEW PHOTO OFFSET PLATE SKYROCKETS TO FAME!**




**3M**
BRAND

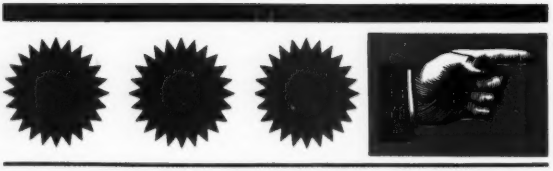
THE 3M BRAND
TYPE "L" PLATE

# FINER PRINTING QUALITY!!

**PRECISION PRE-SENSITIZED!!!**

UNEXCELLED FOR
SHORT RUNS

PLUS! PLUS! MANY, MANY MORE FEATURES!
**SEE INSIDE!!!!!!!!**

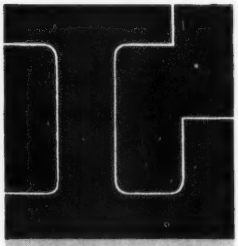


# NEW 3M BRAND TYPE "L"

PRE-SENSITIZED ALUMINUM

# PLATES

## ARE PERFECT FOR ALL KINDS OF SHORT RUN JOBS!!!!!!!!!



IS FOR...
LITERATURE AND LETTER-HEADS.....

HOUSE ORGANS & PROGAMS

BULLETINS & PRICE LISTS

************

DIAGRAMS & DRAWINGS

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SALES BOOSTERS AND POSTERS

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OFFICE FORMS

**PLUS**

MANY MORE SHORT RUN

**JOBS!!**

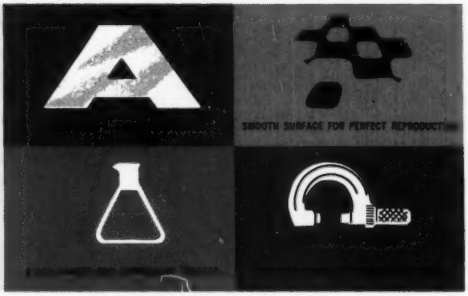
************

**IN OFFICES** . . . the new 3M Brand Type "L" Photo Offset Plate is everybody's favorite—from the office boy to the boss! No other plate is so easy to handle, so simple to process, so convenient to run. And, because its printing surfaces are smooth aluminum, every form and bulletin has a truly "professional" look!

**IN LETTER SHOPS** . . . this flexible plate is perfect for every type of short run printing job—from office forms to advertising literature. It resists scratches and finger prints, virtually eliminates halation, and rolls up fast on the press. Additions and deletions can be made with a pencil on the press!

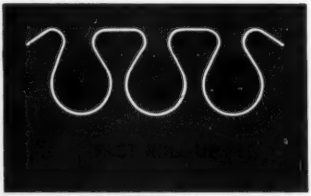
**IN REPRODUCTION DEPARTMENTS** . . . 3M Type "L" Plates with new 3M Type "L" Speed Desensitizer is the perfect combination for fast, "systems" printing. You just expose the plate to step six on Gray Scale . . . mount it on the press . . . then wipe it with 3M Speed Desensitizer . . . and run. You get top quality with speed and economy!

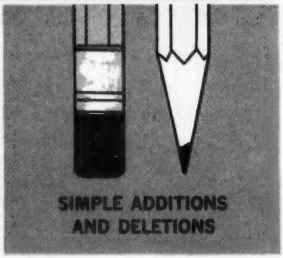
# Four reasons why you get better printing quality at lower cost with pre-sensitized 3M Type "L" Plates




## AND YOU GET ALL THESE ADVANTAGES WITH TYPE "L" PLATES!

**NEW CONVENIENT PACKAGE** with polyester overwrap provides maximum moisture protection. New flip-up top provides quick and convenient accessibility to plates.





**Want more information? . . . sizes and prices? . . . a demonstration? . . . call your 3M Lithographic Supply dealer or 3M Branch.**

*This insert produced by Walter G. Anderson, Printers, Lithographers of Minneapolis, Minnesota on Harris 60 two/color, using 3M Brand Type S plates. Stock used is 80# Rex Art Enamel, coated two sides.*

make up the largest portion of the offset department's work. For jobs requiring 2,000-5,000 copies, the department makes metal plates on its Photo-Rapid plate maker. On orders for runs of more than 5,000 the material is sent to the company photo studio for a negative from which a long-run metal plate is made.

The plates are then run off by the appropriate printing area and returned to the requisitioning department.

The reason for this geographic breakdown of work routing at Corning is a simple one. Experience has shown that it cuts time. Service by the nearest printing area eliminates waiting time. Since the departments in the southside area provide more work for the offset section they are served by the larger facility.

The offset printing department was created in 1950 as the initial step in the establishment of a Central Office Service Group. Today this Group includes in-plant printing, microfilming, records management and message control. The printing section of CGW services the main plant in Corning N. Y. and seven branch plants.

### Nature Of Jobs

The jobs it gets include letters, forms, advertising literature and promotional material. To turn out such a variety of work requires teamwork and skill. Corning printing employees acquire these qualities on the job. All five members of the department were employed in other departments at Corning before moving into printing. None had prior offset experience.

Corning finds that this combination of area job assignments, in-plant training and printing gives better control and more economical and faster service than outside shops. □

## All About Blankets

*continued from page 15*

Unfortunately, pressmen too often use a long handle or pipe on the end of the wrench for extra leverage, resulting in overstretching and, consequently, shortening the life of the blanket.

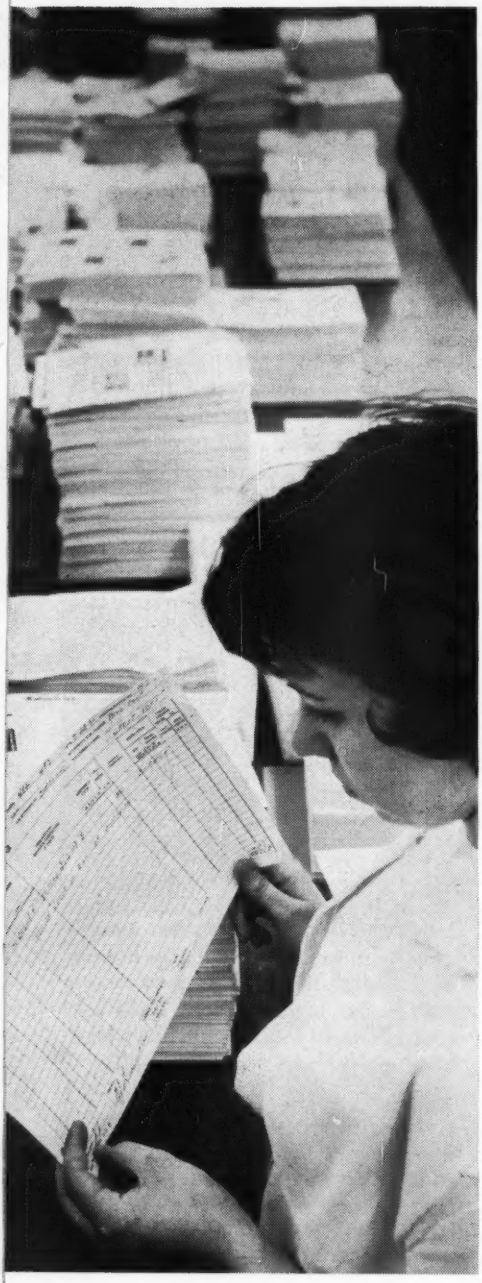
A new blanket will have an "after stretch" following its original tightening on the press. Therefore, pressmen will find it wise to check the printing tension of the new blanket after 100, 1000 and 1500 impressions.

After the blanket is properly mounted and fitted, its printing surface must be washed. An application of water followed by a thorough cleaning with a high quality blanket wash is necessary to remove the protective powder coatings used in the manufacturing process. An abrasive should *not* be used to clean the blanket. It may leave a rough surface that will give poor printing quality.

After a blanket is in use, the blanket should be washed regularly with a petroleum distillate, oil free, with a boiling temperature between 190 and 265 degrees F. Such solvents as white gas, kerosene, benzol, toluene, ketones, xylene, esters, carbon tetrachloride, carbon disulphide, turpentine and pine oil *should not be used.*

At the end of each day it is a good practice to powder the blanket. Powder will absorb oils and foreign materials on the blanket face. In the morning, the blanket should be washed with water to remove the powder.

It is a good idea to "rest" blankets by rotating a pair or more. Believe it or not, a printed job will be improved through the use of a "rested" blanket. The "resting" blanket should be housed in a cool, dark, dry place. □



# ADMIRAL ALLOCATES BY JOB, TYPE AND VOLUME

Procedure increases printing department's volume 50 per cent.

by BERNARD HEINRICH
*Admiral Sales Corp.*

A key to the speed and flexibility of our reproduction service is the allocation of work to offset machines by job type and volume. This procedure and other shortcuts have enabled us to handle an incredible 50 per cent more volume than previously.

Backbone of our reproduction system is a whole stable of A.B. Dick offset machines. These include one Model 350 and three Model 360's.

The Model 350 is used to run general jobs calling for 15 to 500 copies. One Model 360 is assigned to general duplicating of forms and other material in quantities of 500 to 5,000. Another produces general duplicating in quantities of 10,000 or more copies. The third 360 duplicates nothing but systems work, which varies from 15 to 100 copies.

### Allocation Advantages

Allocation of work loads on all these machines offers two advantages: (1) Operators become thoroughly familiar with the techniques needed to run their particular jobs. For instance, the systems machine operator is adept at quick changeover of masters for short-run repetitive work. (2) Work scheduling is more efficient since we know exactly how much time it takes the machine to run the type of work assigned it.

### Selection of Plates

Another secret in the proper use of these machines is in the selection of plates. Both the 350 and the machine handling runs of 500 to 5,000 take paper masters imaged by a facsimile process. The imaging is done in an area immediately adjacent to the duplicating and collating operations.

Facsimile preparation of masters also permits copy changes to be made easily. Alterations are accomplished by cutting out old copy, pasting in the new and re-photographing.

Metal plates are used for the machine that handles runs of 10,000. In addition, when re-runs are likely or for reproduction of halftones these plates are ideal.

Masters for the machine reserved for systems work are typed in the departments responsible for initiating action in the various systems. These masters are delivered to the printing department periodically throughout the day in batches of 25 to 50 at a time.

OPERATOR inserts paper master into offset duplicator prior to repro run.

During 1960 we increased our volume to 24,000,000 copies of both black-and-white and colored materials. These included everything from forms, letterheads, bulletins, pages of books, promotional literature, proposals, specification sheets, drawings, price lists and direct mail through paperwork for our sales order-invoice, production order and engineering change order systems. □

# A REFERENCE GUIDE TO DIRECT IMAGE PLATES

In the March issue, we published the first part of this guide, giving causes and cures to common problems in preparing and running off plates. This month's guide is the continuation and we suggest again that you clip it out and keep it near your platemaking unit for ready reference. Charts on other problems will appear in succeeding issues. Suggestions for helpful guides are always welcome. Send them in.

| PROBLEM | CAUSE | CURE |
|---|---|---|
| **6. Tone or scumming** | a. Wrong type of plate etch to prime plate. | a. Use recommended etch. |
| | b. Water roller not set properly. | b. Reset with strip of paper, allowing slight pressure when roller is down. |
| | c. Ink rollers not in good contact with plate. | c. Set for 3/16" to 1/4" bead on plate. |
| | d. Water roller molleton covers too full of ink and not able to carry water. | d. Change molleton covers and use fountain solution to help keep it cleaner while running. Wash dirty cover with Tide and water. |
| | e. Press oiled too often and oil sprays on plate — spots appear. | e. Let press run with paper feed off. Then stop and sponge up excessive oil from press. |
| | f. Stencils typed in same machine and care was not taken to clean platen and rubber rollers. | f. Take out platen and wash up all parts with carbon tetrachloride or alcohol. |
| | g. A fast setting type of ink being used and press run was interrupted for a time permitting ink to dry on plate surface. | g. Avoid fast dry inks; use only recommended ink if interruptions are a factor in that particular operation. |
| | h. Plate got dirty. | h. Keep plate covered before press run is started. |

| | | |
|---|---|---|
| | time permitting ink to dry on plate surface.<br>h. Plate got dirty. | factor in that particular operation.<br>h. Keep plate covered before press run is started. |
| **7. Spreading or fill-in of image** | a. Wrong type of ribbon used.<br>b. Press is over-inked.<br>c. Too much pressure between plate and blanket.<br>d. Plate was not run down before gumming.<br>e. An inferior gum of too thin a substance was used.<br>f. Too fast drying ink can fill in type.<br>g. Ink was too thin and bled into plate. | a. Use special litho ribbon.<br>b. Run off ink on scrap paper.<br>c. Ink up plate and draw a bead of 1/8" to 3/16" on blanket.<br>d. Run plate to gray copy and stop press.<br>e. Use recommended gum full strength.<br>f. Use recommended ink.<br>g. Use recommended ink or add 15 cc plate cleaner to 1 pt. of fountain solution. |
| **8. Plate tears off hooks on press** | a. Too much pressure between plate and blanket.<br>b. Cylinder gears are worn and excessive play causes backlash.<br>c. Plate clamp recessed too far into cylinder.<br>d. Plate clamps are too sharp.<br>e. Ink form rollers dragging on plate.<br>f. Molleton roller dragging or set too tight against plate. | a. Ink up plate and draw a bead of 1/8" to 3/16" on blanket.<br>b. Replace with new cylinder gears.<br>c. Build up clamp until it is slightly lower than inset of cylinder.<br>d. Round off with emery cloth.<br>e. Grease shafts so rollers turn freely.<br>f. Clean shaft, grease and reset with strip of paper allowing slight pressure when when roller is down. |
| **9. Haze or tone around erasures** | a. When unwanted image was deleted, the image was spread — not erased.<br>b. Ribbon used was too greasy for litho work.<br>c. Wrong type of eraser was used.<br>d. Dirty eraser.<br>e. Wrong type of fountain solution. | a. Remove small portions — do not attempt to remove in one stroke a complete word<br>b. Use recommended litho ribbons at all times<br>c. Use pencil eraser only<br>d. Clean with eraser cleaner<br>e. Use etch diluted 32 to 1, or fountain cleaner diluted 15 to 1 |

# AUTOMATIC COLLATING

Over the years, the Graphic Arts Department of a well-known New York-based chemical corporation has earned a reputation as a "can do" organization — "can do" within 24 hours, that is. It's a reputation the staff is proud of and wouldn't like to lose. Because of this, ways to improve efficiency are constantly being sought.

Until recently, the gathering of duplicated sheets into sets was regarded as the least efficient operation in the department. Hand collating methods had been displaced along the way by semi-automatic collating machines, but this half-way measure, too, proved unequal to the task.

Finally, after much discussion pro and con, the big decision to go fully automatic was made. It has never been regretted. The 12-station Thomas Gathermatic — purchased as a result of this decision — has since speeded up service 50 per cent and promises to save about $7,000 annually in labor costs. One worker already has been transferred from collating to a newly acquired offset press.

The automatic collator has proven extremely easy to master. The department head reports that it takes only about five minutes for an individual to become proficient in its operation. Basically, all that's involved is the loading of the collator's bins — one page-stack to a bin, in the proper page sequence. The operator then merely presses a "start" button and the machine takes over, gathering sheets automatically into sets of from two to 12 sheets each (depending on the number of bins used). It will accommodate sheet sizes from 3″x5″ to 11″x14″ in most weights and finishes. Capacity of each bin is about a half ream or 1¼ inches 16# or 20# stock.

Finished sets are stacked in criss-cross fashion. Since the unit will gather sheets at the same rate – 6,000 sheets per hour – whether it is collating two or 12-page sets, it is used regularly to collate a job that, say, consists of only 100 two-page sets.

Two or three jobs – each of whose stock differs markedly in weight – can be collated together. The set-up involves putting a layer of sheets for one job at the bottom of each bin, loading the next group of sheets on top of this layer and doing the same with a third or fourth layer of sheets. The machine is equipped with an automatic miss and double detector. After the top layer has been converted into sets and the weight of stock changes to that of the next layer, the automatic miss and double detector detects the change and stops the machine. In a matter of seconds, the operator adjusts the detector to the new weight job. After the start button has been pressed, the collator handles the next layer-job.

The switch to automatic collating has actually affected the very nature of the work handled by the department. For one thing, the department now handles much more in the way of actual mailing. This helps ensure complete control over the job – from start to finish – for, when this phase of the job is handled internally, the supervisor knows that a job has gone out – properly.

A recent mailing illustrates the speed with which a job is now turned out. At 6:30 on a Friday evening, the company's Agricultural Division gave the Graphic Arts Department copy for a special price change notice. Consisting of 15,000 sets of four sheets each, the bulletin had to be mailed to distributors and farmers the following Monday. The job was "on press" Friday evening. As sheets came off each of four presses, they were loaded into the Gathermatic, collated and stapled. The job was finished that same night.

The company's quarterly financial report is another example of a recent rush job. Runs of this report can go as high as 8,000 copies. The last time it was handled, copy was received at 10 A.M. The job had to be ready that afternoon. By noon, 500 collated sets were delivered to the vice-president's office; by 2:30, the balance of the run was completed, ready for mailing. Sales management's "Five-Year Forecast" was another pressure job. Top management needed advance copies of the 18-page booklet for a preliminary staff meeting. Nine-thirty in the morning, copy was delivered; by noon, 60 copies – collated, punched and spiral bound – were delivered. □

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# NEW! LITERATURE

*For more information on any item, circle the same number on the Reader Inquiry Card (p. 32).*

## CAMERAS/ PROCESSORS

**Ektalith Cameras 700**

Kenro Graphics. Literature on Kenro cameras adaptable to the Ektalith method.

**Vertical Camera 701**

M. P. Goodkin. Data on the Vertical 18 camera with exclusive balanced lighting.

**Photocopy Camera 702**

Hoffman Professional Camera. Data on new photocopy cameras with 11 x 14, 14 x 17, and 24 x 24 dimensions.

*Use the Readers Inquiry Card for more information.*

**Reproduction Camera 703**

Robertson Photo-Mechanix, Inc. Description of "Econo-Mite" camera developed for the Kodak Ektalith method.

**Mechanical Art 704**

Lacey-Luci. Brochure on complete line of art aids, visualizers and process cameras.

**Camera/Processor 705**

A. B. Dick. Booklet details how the Photoplax Camera/Processor Model 175 offers an aluminum plate in 2 minutes.

## TRIMMING, BINDING COLLATING

**Desk Top Collator 707**

General Binding Corp. Illustrated spec sheet on portable electric collator.

**Automatic Cutters 708**

Challenge. Data on power paper cutters Champion Model 305MC and 305MCD.

**50-Station Collator 709**

Thomas Collators. Data on a collator which counts and staggers 25,000 sheets per hour.

**Collator/Tipper 710**

Farrington Business Machines. Brochure on the Tippy which collates materials up to 17 x 22".

**Paper Drills 711**

Ottawa Mfg. Corp. Brochure listing manual and hydraulic models currently available.

**Tipper-Collator 712**

Super Speed Printing Machinery, Inc. Complete unit with adjustable, removable glue reservoir.

**Paper Drill 713**

Lassco Products. How the Spinnit paper drill will prepare prints and drawings for loose leaf binding.

## PRESSES, DUPLICATORS AND ACCESSORIES

**Duplicator Rollers 715**

Lith-O-Roll. Booklet on all models of precision offset duplicator rollers.

**Graphic Tool 716**

Foster Manufacturing. Literature on an offset press perforating rule.

**Color Press 717**

Harris-Seybold Co. 20-page booklet on features of Harris single color press for 14½ x 20½-inch sheet size.

**Offset-Type Mimeo 718**

Gestetner Corp. Data on a stencil duplicator designed like a printing press with dual cylinders and paste ink.

**Offset Duplicator 719**

Townsend Industries. Specs on the Multilith offset duplicator 1250W which shortcuts extra paper handling.

**Lubrication Chart 720**

Anchor Chemical. Diagram lists all types of repro equipment and where each is lubricated.

**Press/Collator 721**

Didde-Glaser. Data on low-cost roll-fed offset presses.

**Automatic Duplicator 722**

Rex-Rotary. Illustrated booklet on Model D 280 stencil for electronic reproduction.

**Duplicators 723**

Addressograph-Multigraph. Photos and price list of Offset Duplicator Models 1250, 1275 and 2550.

**Direct-Image Fotoplate 724**

Warren. Learn about development allowing you to run letterpress forms offset.

## PAPERS

**Offset Papers 726**

Champion Paper Co. Specifications of bond and offset papers offered by this company.

**Paper Evaluator 727**

A.B. Dick. Six-page folder in which different types of paper may be inserted for comparison purposes.

## PLATE MAKING

**Projection Film Plate 728**

DuPont. Bulletin describes methods for preparing Cronaflex projection film as an offset printing plate.

**Flip-top Platemaking 729**

NuArc Co. Bulletin N500 K describes new 13 x 18" flip-top platemaker designed for small offset plates.

**Supplies 730**

Douthitt Corp. Catalog on a complete line of platemaking equipment and supplies.

**Offset Plates 731**

Gevaert. Booklet outlines how to make offset plates in 1-2 minutes.

**Presensitized Plates 732**

Azoplate Corp. Data on how Enco Pacemaster plates are prepared for press in less than a minute.

**Offset Supplies 733**

Polychrome Corp. Catalog describing presensitized aluminum plates and other offset supplies. Data on complete chemicals line.

**Graphic Arts Aids 734**

Minnesota Mining & Mfg. Co. Manual shows the many ways in which offset plates can be used in the graphic arts.

## STRIPPING TABLES

**Line-Up Table 736**

Craftsman Line-up Table. Details on Craftsman tables for line-up and register work.

## MISCELLANEOUS

**Reproduction Retrieval 737**

Copease. New method of reproduction retrieval of 18 x 24" engineering drawings involving Copilith Super Offset Duplicator.

**Ink Color Swatches 738**

Van Son Holland Ink Corp. Color swatches showing 14 shades of metallic inks in solids and as tints.

**Web Offset Basics 739**

Miehle Co. 32-page pocket size booklet describes web offset in nontechnical terms.

**Arc Lamps 740**

Strong Electric Corp. Literature on Grafarc and Challenger lines of high intensity arc lamps.

**Art Services 741**

Harry Volk Jr. Art Studio. Samples of ready-to-use offset art, B&W line, halftones.

**Graphic Arts List 742**

Natural Lighting Corp. Flyer describes modern lighting systems for photo reproduction.

**Color Separations 743**

World Color. Illustrated catalog showing how to obtain natural color lithography at moderate cost.

**Incandescent Lamp 744**

Macbeth Arc Lamp Co. Brochure on new camera lamp that never grows dim.

**Graphic Arts Book 745**

Burke & James, Inc. Catalog covering complete lines available in all areas of graphic arts.

**Copier Cabinets 746**

Mim-E-O Stencil Files Co. Data on copier cabinet with 30" working surface.

**Photocopier 747**

Photorapid. Specs on the Electra and other silver diffusion photocopiers.

# AN INTRODUCTION TO OFFSET

**Mel Mark continues his general discussion of camera operations and darkroom techniques.**

by MEL MARK

The steps in processing exposed litho film are relatively simple.

Our first concern is to develop the latent image. DK-50, Microdol and similar developers are designed to take from five to 20 minutes to gradually bring in the image and keep the silver from "blocking up" and filling in the tonal range.

Litho developers operate in the 2½ to three minute area, using harsh ingredients to make solid black density. Since the span is short, it requires good tray technique to achieve even negatives that are identical. It is not unusual for some photo sections to shoot a book and have the thickness of the type change with each page because of improper handling.

It is unwise to prepare the tray of developer too early, since it deteriorates as it stands. When the bath is fresh, the developing time is about 2½ minutes. (Check each manufacturer's instructions.) This time is gradually increased as the solution is used.

An important factor is the temperature of the developer. A suggested working range is 65 to 68 degrees. A change of three degrees is quickly apparent on the negative. Warmer developer causes more rapid development and, depending on its freshness, may close up fine detail. It also forces more rapid handling of film in quantity, results in uneven negatives and cuts down its life.

Don't try to economize by using a shallow bath. It only leads to films not being properly immersed and sticking. Also, it precludes handling batches of any size, thus extending the darkroom man's time. The use of an oversize tray enables the operator to manipulate the negatives better.

It is imperative that the negatives be agitated as they develop. Even a single negative may be uneven if allowed to still develop completely, since the large areas of silver turning black use more solution than the clear.

Two of the more popular methods of insuring even development are shuffling and rotating. The shuffling method involves a single pile of negatives. The darkroom technicians keep moving the negative on the bottom of the pile to the top of it until the full developing time has elapsed. Rotating is similar except that the tray is larger and two piles are used. The bottom

negative of one is placed atop the other pile and when completed, they are rotated back. Use only a few negatives to perfect the technique before attempting large batches.

One of the problems of developing in quantity is the method of inserting into the tray. The film must be evenly covered and handled rapidly to develop a sufficient quantity in the short time specified. As the quantity and weight of the film increases, the negatives tend to cling. Again, practice with a few before endangering many. Be good with one first.

### Must Know Good Negative

The darkroom man must know what a good negative looks like and be able to judge its quality quickly as it nears completion. The development does not reach a fixed point and stop. There are scales available to include on the copy to aid the inexperienced.

Chemicals should be prepared and stocked in sufficient quantity to assure a reasonable consistency in the age of the solution. Raw, freshly mixed developer will not react with the same constancy as the more dependable day-old stock.

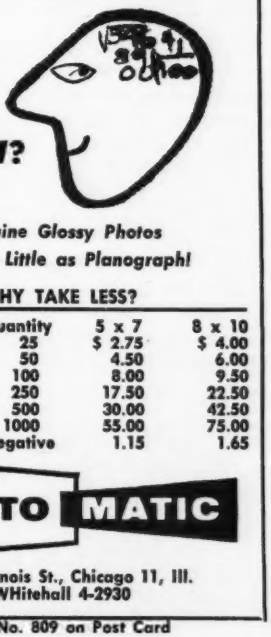
The second processing step — the short stop bath — is one that is often neglected and abused in many darkrooms. The purpose of this solution is, as its name implies, to stop the developing action and rinse away harmful chemicals that would not mix well with the third solution — the fixer.

The fixer is uncomplicated and easy to mix. It is composed of mostly water with a small quantity of acetic acid. Yet many darkrooms still use only a tray of water or running water. If the processing is to be standardized, and working any other way is out of the question from both the operator and management viewpoint, then to follow through, a short stop should be used.

### Standardized

Exposures can be standardized and development can be controlled. An aid to that end is the ability to stop the action at the correct moment. Water simply retards it, and if any quantity of negatives are being transferred from the developer, it will not react the same as the pile grows.

It is certainly possible to turn a film black, rinse it in water, finish processing and have a good negative. Can you control it and do it consistently? By taking the necessary steps and avoiding the "short cuts," the work is up to standard and, surprisingly, easier. □

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# NEW PRODUCTS

*continued from page 5*

### Electrostatic Processor 605

A fully automated electrostatic camera/processor has been announced by *Robertson Photo-Mechanix, Inc.* The Electricon produces offset masters from any original copy in less than one minute and has a 100-master capacity. No negative is required and the operation can be accomplished in a lighted room. It will reproduce black and white and a wide range of colors, halftones, or line originals.

### Automatic Folder 606

*Martin Yale, Inc.*, announces the introduction of a fully automatic electric folding machine. Called the Seventeen, it handles all weights of stock, folds, perforates, scores and slits in separate or simultaneous operations. Features are visible micro adjustment for angle fold control, and fast feed and speed adjustments for folding stock. It can handle 10,000 11" sheets per hour.

### Duplicator Rollers 607

An addition to their line of offset duplicator rollers has been announced by the *Lith-O-Roll Company.* The new water fountain rollers are available for both the old and new Series 1200 Multiliths. The solid aluminum rollers feature an ⅛" longer surface area and are fitted with stainless steel inserts in both ends. Price: $17.95.

### Processing Solution 608

Simplified processing of quality negatives for photolithographers and photoengravers is promised with a one solution liquid developer formulated by *Chemco Photoproducts, Inc.* Named Powerlith Developer Mono-Concentrate, the product eliminates handling separate A and B solutions. Improved density and hardness of dot structure as well as purchase economies are some of the features of the new developer. Five gallon Mono-Concentrate Cubitainers are available which may be fitted with a probe dispenser.

### Litho Film 609

A new addition to the Guilleminot line of Supre-Litho Ortho Film has been announced by *Supreme Photo Supply Co., Inc.* Called Supre-Line, it has an orthochromatic emulsion with a matte base, and was developed especially for line reproductions. The film is available in sizes from 8x10 to 20x24, 100 sheets per box. Price: $14.18 to $80.28 per box.

### Lightweight Offset Paper 610

A new lightweight highly opaque vellum paper for offset reproduction has been introduced by *Brownville Paper Co.* Designed for either letterpress or offset lithography, the Vellum Opaque has the opacity and uniform vellum finish necessary for fine reproduction of type and illustrations. This 35-pound paper is available in six pastel shades.

### Color-Proof Process 611

A color-proof process called Kolor-Kote has been developed by *N. Teitelbaum Sons, Inc.* Proofs are made by wiping Kolor-Kote inks on special white opaque plastic sheets, exposing the negative and developing with ammonia water. The process can be repeated for each color, and cuts down on press proofs.

### Mechanical Negative 612

An interesting approach aimed at simplifying the insertion of titles and copy in photoprints and enlargements is represented by a mechanical negative material introduced by *Polychrome Corp.* Similar in approach to a standard mimeo stencil, it may be typed or drawn upon and then used as a negative. For those prone to errors, number 201 correction fluid is available.

### Overhead Camera 613

*W. A. Brown Mfg. Co.* has announced the development of the 31" Admiral Overhead Camera. Featured is a 48"x72" open face vacuum type projection back useful for processing engineering drawings. It is available with cable or screw drive.

### Horizontal Bed Camera 614

*Graphic Industries, Inc.*, has announced the development of the new Lacey-Luci Speed-Master Camera for line or halftone work. Semi-portable, this 20"x50" metal horizontal bed camera has an enlargement and reduction ratio of more than 2X.

### Carbon Forms Machine 616

Tippy, a snap-out carbon forms making machine, is available from *Farrington Business Machines Corp.* Average speed-output is 2,000 sheets per hour and it handles sheet sizes up to 17"x22".

### Power Paper Cutter 617

The Amprex 23 Power Paper Cutter, introduced by *American Printers Exchange, Inc.*, was designed for small print shops and duplicating departments. Equipped with a power knife, it can cut to a 4" thickness and has a 23" cutting width.

### Cure for Dirty Hands 618

*Paul B. Williams, Inc.* has come up with a handy office aid that may be useful throughout duplicating departments. Girl Friday Cleanettes are individual packages containing a small cloth impregnated with a pleasant-smelling cleaning fluid. Office smudges, typewriter ribbon stains, etc. are said to be quickly removed. It is also claimed that most inks can be wiped off with the Cleanette.

### Vertical Camera 619

*Kenro Graphics, Inc.* has announced the availability of the Vertical 24 Camera. It features a vacuum back and makes line and halftone negatives up to 18"x24". It also shoots 8½"x11" copy four-up, newspaper page size.

### Printer Modification 620

Increased capabilities have been announced for the *Miller-Trojan* Universal Incandescent Fluorescent Printer. Switches for dodging purposes may be installed for selective exposures in different areas. Bulbs can be dimmed when exposing high-speed materials. The Model FIVP Universal Printer is built with a "clam shell" or motor-driven lid depending on size.

### Type Cleaner 621

A novel method for cleaning typewriter type has been introduced by the *Perry Sherwood Corp.* Britetype, a stick with a wick at one end, is squeezed to liberate a dirt-dissolving formula and then rubbed over the type faces. Price: box of 10, $.98.

### Automatic Stapler 622

A new automatic stapling machine has been announced by *Thomas Collators, Inc.* The stapler can be integrated with the company's collator, providing fully automatic collating and stapling or used as a hand-feed unit. It will staple sets up to ⅛" thick.

### Self-closing Package 625

*3M* has introduced a self-closing package for its Type L photo offset plates providing protection from dirt, moisture and light while plates are light-sensitive.


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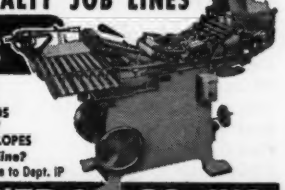

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# 3 color work

*continued from page 7*

COLOR DENSITOMETER is one of the vital keys to high-quality 3-color reproduction.

and errors which can cost money. The greater number of procedures which can be measured by a standard reading, the less guesswork is involved, resulting in lower production costs on every job that comes through the shop.

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### Seminar

*Rochester Institute of Technology will conduct a Quality Control Seminar for the Graphic Industries at Rochester's Towne House Motor Inn, June 26-30. Course content for the seminar will include: Who Uses Quality Control, Basic Quality Control Methods, How to Establish Inspection Systems, How to Use Control Charts, Roundtable Discussion of Methods and Techniques for Improving Efficiency and Quality, and How to Use Quality Control Information.*

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# PRINTERS' BOOKSHELF

**POCKET PAL 6th Ed. International Paper Co., New York, N. Y. 126 pp., illus., $.50.**

The handiest compact source of printing information we have seen to date is the Pocket Pal. Only 4¼" x 7¼", this guide covers subjects from the origins of printing and paper to the latest developments in printing. It offers such features as weight and cutting charts of commercially available paper.

Of special interest to in-plant printers are the enlarged sections describing the phases of offset lithography, including preparation of copy and plates. The guide also covers other printing processes and composition, photoengraving, practical impositions, choosing inks and paper, folding and binding. Another section enlarged from previous editions is a graphic arts terms glossary. Pocket Pal is written clearly and concisely.

—F. P.

**DRAWING FOR GOOD REPRODUCTION, 2nd Ed., by Author H. Rau, National Association of Blueprint & Diazotype Coaters, Washington, D. C., $1.**

Preparation of technical drawings these days requires particularly good draftsmanship since such material is often reproduced. This manual suggests techniques to improve their reproduction, covering preparation, care and life prolongation of documents, and a brief description of reproduction processes and materials. The manual should be of use especially to reproduction departments.

**PHOTO COMPOSING by Charles W. Latham, Lithographic Technical Foundation, New York, N. Y. 84 pp., illus., $4 (plus handling charges).**

Photo-composing instruction, for years limited to passed-down and manufacturer-supplied information, now is available in book form thanks to the Lithographic Technical Foundation. Not a new skill, photo-composing is now more than ever a part of the platemaker's occupation.

Learning on the job is still the soundest way of mastering the machine's use. Yet, advanced reading will acquaint the trainee with composing principles and troubles, quickening the learning process by eliminating the trial and error method.

This publication (#515) describes the operation of photo-composing machines, then explains in printer's language the procedure in setting up various types of jobs. Steps included are making a layout, registering, grouping multiple negatives, nesting forms, all illustrated with charts, diagrams and photographs. —F. P.

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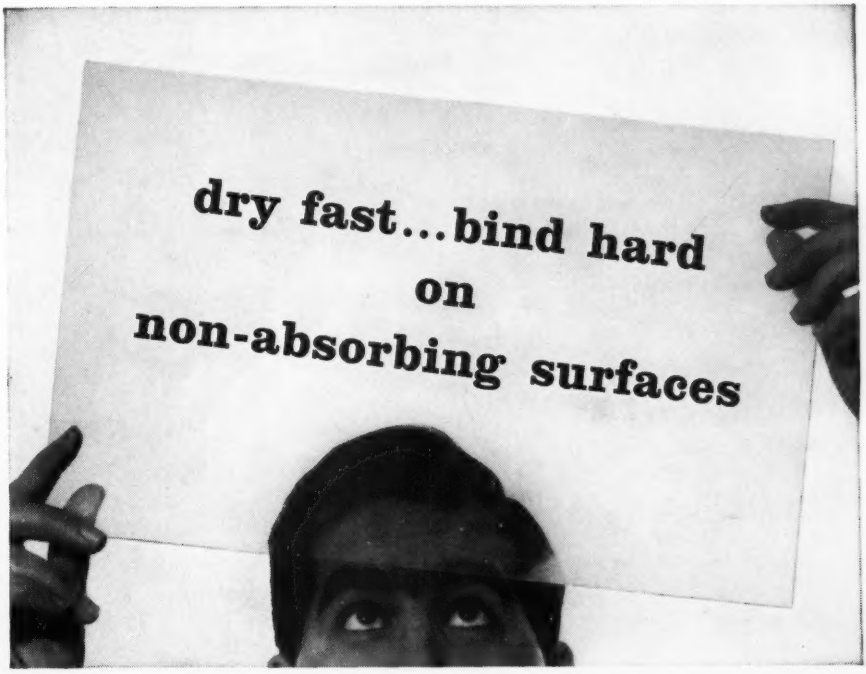


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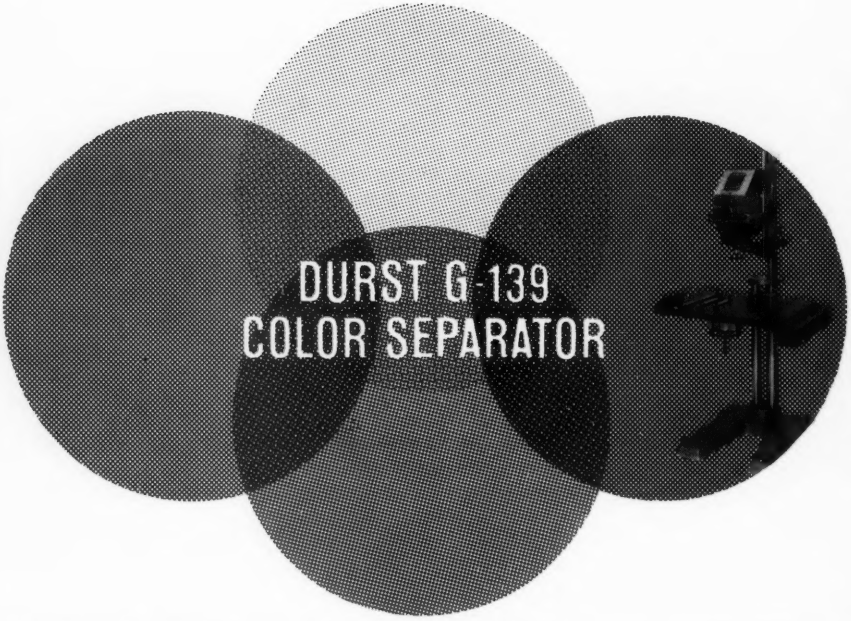


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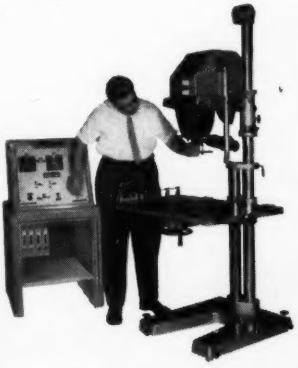

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